

CLAIMS

What is claimed is:

- 1 1. A paper separator equipped with a plurality of paper-separating fingers for separating
2 one or more sheets of paper and abutting and/or backed off from one or more
3 photosensitive bodies, the paper separator comprising:
4 one or more finger bodies, provided at or near one or more upstream ends in one or
5 more paper transport directions of at least one of the paper-separating fingers, and
6 capable of abutting at least one of the photosensitive body or bodies;
7 one or more guide members, provided at or near one or more downstream ends in one
8 or more paper transport directions of at least one of the paper-separating fingers, and
9 capable of touching so as to guide one or more sheets of paper which has or have
10 separated from at least one of the photosensitive body or bodies; and
11 one or more support components pivotably supporting at least one of the paper-
12 separating fingers so as to impart one or more restoring forces thereto urging at least one
13 of the paper-separating fingers to, under the force of its own weight, bring at least one of
14 the finger body or bodies into abutting engagement with at least one of the photosensitive
15 body or bodies, and so as to, when at least one of the guide member or members is
16 touching at least one of the sheet or sheets of paper, cause at least one of the finger body
17 or bodies to at least partially overcome one or more restoring forces produced by the
18 weight of at least a portion of at least one of the paper-separating fingers and back off
19 from at least one of the photosensitive body or bodies.
- 1 2. A paper separator according to claim 1 wherein:
2 at least one of the support component or components is disposed between at least one
3 of the guide member or members and at least one of the finger body or bodies of the
4 paper-separating fingers.
- 1 3. A paper separator according to claim 1 or 2 wherein:
2 at least two of the paper-separating fingers are arranged alongside at least one of the
3 photosensitive body or bodies in one or more directions perpendicular to one or more
4 paper transport directions;
5 operations bringing respective finger bodies into and out of abutting engagement with

6 at least one of the photosensitive body or bodies being carried out in mutually
7 independent fashion.

1 4. A paper separator according to claim 1 or 2 wherein:

2 at least two of the paper-separating fingers are arranged alongside at least one of the
3 photosensitive body or bodies in one or more directions perpendicular to one or more
4 paper transport directions;

5 operations bringing respective finger bodies into and out of abutting engagement with
6 at least one of the photosensitive body or bodies being carried out in mutually
7 cooperative fashion.

1 5. A paper separator according to claim 4 wherein:

2 each of at least two of the paper-separating fingers has at least one of the support
3 components; and

4 operations bringing at least a portion of the finger bodies of the at least two paper-
5 separating fingers into and out of abutting engagement with at least one of the
6 photosensitive body or bodies are carried out in mutual cooperation due to action of one
7 or more shafts mutually connecting at least a portion of the support components of the at
8 least two paper-separating fingers.

1 6. A paper separator according to any one of claims 1 wherein:

2 at least one of the support component or components of the paper-separating fingers is
3 disposed at one or more locations such as will cause at least one amount by which at
4 least one of the finger body or bodies moves in one or more directions of engagement
5 with and/or retraction from at least one of the photosensitive body or bodies to be less
6 than at least one amount by which at least one of the guide member or members moves
7 when it touches at least one of the sheet or sheets of paper.

1 7. A paper separator according to any one of claims 1 wherein:

2 at least one of the guide member or members is at least partially formed from at least
3 one material of the same charge polarity as that of at least one toner used to develop at
4 least one latent electrostatic image on at least one of the photosensitive body or bodies.

1 8. A paper separator according to any one of claims 1 wherein:

2 at least one of the finger body or bodies is at least partially formed from at least one

3 material of the same charge polarity as that of at least one toner used to develop at least
4 one latent electrostatic image on at least one of the photosensitive body or bodies.

1 9. A paper separator according to claim 1 wherein:

2 employed as at least one of the guide member or members there are one or more star-
3 ring-type spurs rotatably supported at or near one or more downstream ends in one or
4 more paper transport directions of at least one of the paper-separating fingers.

1 10. A paper separator according to any one of claims 1 further comprising:

2 one or more electrostatic clinging prevention means for, during operations bringing at
3 least one of the finger body or bodies of at least one of the paper-separating fingers into
4 and out of abutting engagement with at least one of the photosensitive body or bodies, at
5 least partially preventing electrostatic clinging between at least one of the paper-
6 separating fingers and one or more members coming in contact with at least one of the
7 paper-separating fingers.

1 11. A paper separator according to claim 10 wherein:

2 at least one of the electrostatic clinging prevention means is the fact that at least one
3 of the paper-separating fingers, or at least one of the member or members coming in
4 contact with at least one of the paper-separating fingers, or both at least one of the paper-
5 separating fingers and at least one of the member or members coming in contact with at
6 least one of the paper-separating fingers, is or are formed from one or more antistatic
7 materials.

1 12. A paper separator according to claim 10 wherein:

2 at least one of the electrostatic clinging prevention means is the fact that one or more
3 antistatic treatments have been applied to at least one of the paper-separating fingers, or
4 at least one of the member or members coming in contact with at least one of the paper-
5 separating fingers, or both at least one of the paper-separating fingers and at least one of
6 the member or members coming in contact with at least one of the paper-separating
7 fingers.

1 13. A paper separator according to any one of claims 10 through 12 wherein:

2 at least one of the electrostatic clinging prevention means is the fact that at least one
3 surface resistance of at least one of the paper-separating fingers, or at least one of the
4 member or members coming in contact with at least one of the paper-separating fingers,

5 or both at least one of the paper-separating fingers and at least one of the member or
6 members coming in contact with at least one of the paper-separating fingers, is or are set
7 to at least one value which is not more than $10^{13} \Omega$.

1 14. A paper separator according to claim 10 wherein:

2 at least one of the electrostatic clinging prevention means is the fact that one or more
3 charge-removing members are provided in the vicinity or vicinities of one or more
4 regions where at least one of the paper-separating fingers comes in contact with at least
5 one of the member or members coming in contact with at least one of the paper-
6 separating fingers.

1 15. A processor cartridge provided with at least one paper separator according to any one
2 of claims 1 to 14 for one or more image forming apparatuses;

3 at least one of the paper-separating fingers and at least one of the photosensitive body
4 or bodies being constructed so as to permit installation and removal in integral fashion
5 with respect to at least one of the image forming apparatus or apparatuses.

1 16. A processor cartridge for one or more image forming apparatuses and provided with
2 at least one paper separator according to claim 15;

3 at least one of the photosensitive body or bodies being constructed so as to permit
4 installation and/or removal thereof with respect to at least one of the paper-separating
5 fingers; and

6 when at least one of the processor cartridge or cartridges is made to assume at least
7 one orientation permitting installation and/or removal of at least one of the
8 photosensitive body or bodies, at least one of the paper-separating fingers is acted upon
9 by one or more restoring forces produced by the force of its own weight and causing at
10 least one of the finger body or bodies to back off from at least one of the photosensitive
11 body or bodies.